chronometer which may be stopped or which will provide a time readout in response to a suitable signal.

In operation, time code generator 26 in pig 12 is synchronized with, or a know time relationship is established with, the timepieces 87 at each of the marker stations. With the marker stations in operation, pig 12 passes through pipeline 10 performing its inspection function during which it records on a magnetic tape in recorder 24 inspection signals and time coded signals. When pig 12 is sensed at marker station 1, timepiece 87 is stopped, or provides a time readout, to indicate the exact time the pig was sensed at that station. As pig 12 continues its run through the pipeline, marker stations located successively further along the pipeline will provide respective indications of the time that pig 12 was sensed. After pig 12 has completed its inspection run of a section of the pipeline it will be recovered and the magnetic tape record will be obtained.

The method for correlating the known locations of the marker stations to the inspection records and time record made in the pig will be described by referring to FIG. 5. Playback device 90 plays back the recorded magnetic tape from pig 12 and the inspection signals, which are assumed to be analog, are coupled over leads 92 to strip chart recorder 94 where they are recorded as visible traces as in FIG. 2. Coded time signals from playback device 90 are coupled out on output lead 95 as coded electrical signals. These signals may be in parallel form or in series form as indicated in FIG. 5 by the single output lead 95. If it is desirable that the coded pig time signals be recorded on recorder 94 in real time numeric figures, appropriate apparatus such as code reader and/or converter 97 and character generator 98 will be provided. Character generator 98 may be the same type of apparatus as described for alpha numeric driver 84 in FIG. 2.

It may be acceptable to record the coded pig time signals on the strip chart of recorder 94 in a coded form, either symbolic or numeric, rather than converting them to numeric real time. With a little practice, an operator may read and interpret the recorded coded signals with considerable speed and facility.

The marker stations are visited by one or more crew members of the operating team to obtain the times that are registered on each of the timepieces 87. Having obtained this information an operator scans the strip chart of recorder 87 to find the corresponding times on the strip chart. He then enters appropriate marker station indicia or identifications adjacent the appropriate recorded times on the chart.

The present invention also may be practiced in the inspection of pipelines that are under water, such as the pipelines that connect off-shore platforms with shore facilities. In such an environment the marker stations also would be under water and in a system operating similarly to that shown in FIG. 1, their transmitters would transmit sonic energy to a sonar-type receiver which may be located near the shore or near the off-shore platform. Alternatively, the marker station may utilize a radio transmitter and antenna carried by a buoy that is moored to or adjacent the submerged pipeline. As a further alternative, the marker stations and base station may be connected by a cable.

In the explanations given above in connection with FIG. 1 it was assumed that a marker station transmitted a signal to base station 40 at the instant that pig 12 was detected, and it was further assumed that this marker station signal, and a corresponding time code signal from TCG 50 was recorded on magnetic tape recorder 58 at substantially the same instant. In some telemetry systems known in the art there is a measured time delay between the occurrence of a detected event and the identification of the transmitted signal at a base station. This delay occurs because of the manner of signal processing at the base station. This type of telemetering system often is employed when there is a limitation on the power of the radio transmitter at the telemetering sending station. In effect, what is accomplished in such a system is a trade-off of transmitter power against transmission time. In the processing of the received information at the receiving station, the equipment recognizes the signal that indicates the occurrence of an event at the sending station and automatically produces a correct time read out from information contained in the received transmission from the sending station. Such a system may be utilized in the practice of the present invention and is intended to be included in the scope of the following claims.

We claim:

1. A method for making a pipeline inspection record having thereon indications of known locations along the pipeline, said method comprising the steps

performing nondestructive inspection of the pipeline with apparatus that moves through the pipeline and past said known locations,

making on the apparatus a record of nondestructive inspection signals as the apparatus moves through the pipeline,

simultaneously with the performance of the nondestructive inspection, providing on said record of inspection signals a time scale to represent time during the recording of said inspection signals,

sensing externally of the pipeline to detect the arrival of the inspection apparatus at known locations spaced along the route of the pipeline,

operating externally located timing means to provide respective time indications which represent the times the inspection apparatus is externally sensed at the known locations,

searching a record of said inspection signals and time scale to identify positions on said record where the recorded time correspond to said externally produced time indications.

2. A method for producing on pipeline inspection record indications of the times that a pipeline pig passed respective known external locations spaced along the pipeline, said method comprising the steps

moving a pipeline pig through the pipeline and past said known external locations,

making with apparatus including timing and recording means carried by the pipeline pig a continuous record representing increments of time that occur during movement of the pipeline pig through the pipeline,

producing with means including timing means located externally of the pipeline time indications representing the times that the pipeline pig passed the respective known locations,

removing said continuous record from said pipeline pig at the conclusion of its passage through a given length of the pipeline,

identifying those time increments that were recorded in the pig which correspond to the respective time indications that were produced externally when the